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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 10/608,187      | 06/30/2003  | Heume Il Baek        | 049128-5114         | 8785             |

9629 7590 08/11/2005

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| EXAMINER |
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PIZIALI, JEFFREY J

|          |              |
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| ART UNIT | PAPER NUMBER |
|----------|--------------|

2673

DATE MAILED: 08/11/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

|                              |                                      |                                    |  |
|------------------------------|--------------------------------------|------------------------------------|--|
| <b>Office Action Summary</b> | <b>Application No.</b><br>10/608,187 | <b>Applicant(s)</b><br>BAEK ET AL. |  |
|                              | <b>Examiner</b><br>Jeff Piziali      | <b>Art Unit</b><br>2673            |  |

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

**A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.**

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 30 June 2003.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-14 is/are rejected.
- 7) ☒ Claim(s) 7 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 30 June 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Priority*

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

### *Claim Objections*

2. Claim 7 is objected to because of the following informalities: line 4 should be changed from "in an offset configuration adjacent data lines" to "in an offset configuration *between* adjacent data lines" (emphasis added). Appropriate correction is required.

### *Claim Rejections - 35 USC § 112*

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:  
  
The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.
4. Claim 6 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.
5. The term "between about 0-1 V" in claim 6 is a relative term which renders the claim indefinite. The term "about 0-1 V" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. It would remain unclear to one skilled in the art how close a voltage would have to be to 0-1 volts before constituting "about 0-1 V."

***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 1-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yasuda et al (US 4,842,371 A) in view of Saishu et al (US 5,949,391 A).

Regarding claim 1, Yasuda discloses an electric field alignment method of a twisted nematic liquid crystal display device (see Column 22, Lines 17-21), comprising: connecting a plurality of thin film transistors [Fig. 1; T<sub>11</sub>-T<sub>44</sub>] arranged along a first direction to a plurality of data lines [Fig. 1; S<sub>1</sub>-S<sub>8</sub>] in an offset configuration between adjacent data lines (see Column 6, Line 54 - Column 7, Line 40); supplying a turn-ON voltage [Fig. 4; b & c] at a level greater than a threshold voltage of the thin film transistors during an electric field alignment of liquid crystal material of the liquid crystal display device at least more than two successive times to a plurality of gate lines [Fig. 1; G<sub>1</sub> & G<sub>2</sub>] arranged along a second direction; and supplying voltages [Fig. 4; d] of opposite polarity to the adjacent data lines during the electric field alignment while maintaining a voltage [Fig. 4; e-j] of a liquid crystal cell of the liquid crystal display device during the electric field alignment (see Column 8, Line 67 - Column 9, Line 49). Yasuda does not expressly disclose the twisted nematic liquid crystal display could also be a ferroelectric liquid crystal display.

However, Saishu does disclose using ferroelectric liquid crystal in place of twisted nematic liquid crystal (see Column 1, Lines 20-32). Yasuda and Saishu are analogous art, because they are from the shared field of driving thin film transistors in an offset configuration for liquid crystal display devices. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to replace Yasuda's twisted nematic liquid crystal with Saishu's ferroelectric liquid crystal, so as to improve display response speed and viewing angle.

Regarding claim 2, Yasuda discloses the liquid crystal cell operates in a Half V-Switching Mode (see Fig. 13; Column 15, Lines 3-12).

Regarding claim 3, Yasuda discloses supplying the turn-ON voltage to the gate lines is performed at least between ten to four-hundred times to the gate lines (see Fig. 10; Column 11, Lines 54-62).

Regarding claim 4, this claim is rejected by the reasoning applied in rejecting claim 1; furthermore, Yasuda discloses supplying a voltage [Fig. 4; b & c] below a threshold voltage of the thin film transistors [Fig. 1; T<sub>11</sub>-T<sub>44</sub>] to a plurality of gate lines [Fig. 1; G<sub>1</sub> & G<sub>2</sub>] during an electric field alignment of liquid crystal material of the liquid crystal display device (see Column 8, Line 67 - Column 9, Line 49).

Regarding claim 5, this claim is rejected by the reasoning applied in rejecting claim 2.

Regarding claim 6, Yasuda discloses supplying the voltage below the threshold voltage of the thin film transistors to the gate lines includes supplying a voltage between about 0-1V to the gate lines during the electric field alignment (see Fig. 4; Column 8, Line 67 - Column 9, Line 49).

Regarding claim 7, this claim is rejected by the reasoning applied in rejecting claim 1; furthermore, Yasuda discloses maintaining a plurality of gate lines [Fig. 1; G<sub>1</sub> & G<sub>2</sub>] in an electrically floating state [Fig. 4; b & c] during an electric field alignment of a liquid crystal material of the liquid crystal display device (see Column 8, Line 67 - Column 9, Line 49).

Regarding claim 8, this claim is rejected by the reasoning applied in rejecting claim 2.

Regarding claim 9, this claim is rejected by the reasoning applied in rejecting claim 1; furthermore, Yasuda discloses a gate driving circuit [Fig. 1; G<sub>1</sub> & G<sub>2</sub>] and a data driving circuit [Fig. 1; 111 & 112] (see Column 6, Line 54 - Column 7, Line 40).

Regarding claim 10, this claim is rejected by the reasoning applied in rejecting claim 2.

Regarding claim 11, this claim is rejected by the reasoning applied in rejecting claim 3.

Regarding claim 12, Yasuda discloses the data driving circuit supplies video data [Fig. 4; d] having different polarities to the adjacent data lines during driving of the display device (see Column 8, Line 67 - Column 9, Line 49).

Regarding claim 13, this claim is rejected by the reasoning applied in rejecting claims 1, 2, and 9.

Regarding claim 14, this claim is rejected by the reasoning applied in rejecting claims 1, 7, and 9.

8. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

### ***Conclusion***

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Wu et al (US 6,809,719 B2), Miyawaki et al (US 6,747,613 B2), Matsushima et al (US 6,396,468 B2), Miyawaki et al (US 6,232,947 B1), Shimada et al (US 6,081,250 A), Kim et

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al (US 6,067,063 A), Kim et al (US 5,805,128 A), Chimura et al (US 5,654,733 A), Suzuki (US 5,436,747 A), Anayama et al (US 5,336,635 A), and Hayashi (US 5,159,476 A) are cited to further evidence the state of the art pertaining to electric field alignment methods.


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeff Piziali whose telephone number is (571) 272-7678. The examiner can normally be reached on Monday - Friday (6:30AM - 3PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bipin Shalwala can be reached on (571) 272-7681. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



J.P.  
2 August 2005



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